ABSTRACT

Disclosed are methods of producing steel rails having a high carbon content and being excellent in wear resistance and ductility from the slabs for rails. One method involves producing a steel rail having a high content of carbon, comprising finish rolling the rail in two consecutive passes, with a reduction rate per pass of a cross-section of the rail of 2-30%, wherein the conditions of the finish rolling satisfy the following relationship: $S \leqq 800 / (C \times T)$, wherein S is the maximum rolling interval time (seconds), C is the carbon content of the steel, wherein the carbon content is 0.85-1.40 mass%, and T is the maximum surface temperature (°C) of the rail head. Another method involves producing a steel rail with a high content of carbon, comprising: finish rolling the rail in three or more passes, with a reduction rate per pass of a cross-section of the rail of 2-30%, wherein the conditions of the finish rolling satisfy the following relationship: $S \leqq 2400 / (C \times T \times P)$, wherein S is the maximum rolling interval time (seconds), C is the carbon content of the steel rail, wherein the carbon content is 0.85~1.40 mass%, T is the maximum surface temperature (°C) of a rail head, and P is the number of passes, which is 3 or more. In addition to above, controlled additional amounts of V, Nb, N may be added to the steel rail and/or controlled rapid cooling of the rail after rolling may be accomplished to provide further improvements.